(1) A micropump, comprising a body of semiconductor material, characterized by a plurality of fluid-tight chambers, selectively openable, formed within said body and having a preset internal pressure.

(2) The micropump according to claim 1, characterized in that said fluid-tight chambers are sealed by at least one diaphragm, openable electrically.

(3) The micropump according to claim 2, characterized in that said diaphragm is a dielectric material layer.

(4) The micropump according to claim 3, characterized in that said diaphragm is of silicon dioxide.

(5) The micropump according to claim 4, characterized in that said diaphragm has a thickness not greater than 1 μm.

(6) The micropump according to claim 2, characterized by a conductive diaphragm for each fluid-tight chamber.

(7) The micropump according to claim 6, characterized in that each said diaphragm comprises a respective electrode having a preferential melting point near an inlet of a respective fluid-tight chamber.

(8) The micropump according to any of claims 2 to 6, characterized by electrical-opening means for opening said diaphragm.

(9) The micropump according to claim 8, characterized in that said electrical-opening means comprise at least one first electrode and, for each fluid-tight chamber, a respective second electrode, said diaphragm being arranged between said first electrode and a respective one of said second electrodes near an inlet of each said fluid-tight chamber.

(10) The micropump according to claim 9, characterized by a first voltage source, connectable to said first electrode of said micropump and supplying a first voltage (V1), and a second voltage source, selectively connectable to one of said second electrodes of said micropump and supplying a second voltage (V2).

(11) The micropump according to claim 8, characterized in that said electrical-opening means comprises a current source, selectively connectable to one of said electrodes and supplying a current (I) that melts said electrodes.

(12) A process for manufacturing a vacuum micropump, comprising the steps of:

a) forming cavities in a substrate of a wafer of semiconductor material; and

b) sealing said cavities at a preset pressure.

(13) The process according to claim 12, wherein said step of forming cavities comprises the steps of:

a) forming, on top of said substrate, a mask having sets of openings;

b) etching said substrate through said sets of openings;

c) coating exposed portions of said mask with a first layer of said semiconductor material; and

d) thermally oxidizing said first layer so as to close said first sets of openings.

(14) The process according to claim 13, comprising the steps of:

a) growing an epitaxial layer on said mask;

b) depositing at least one conductive line on top of said epitaxial layer; and

c) etching said conductive line and said epitaxial layer until said cavities are reached.

(15) The process according to claim 13, wherein said step of sealing comprises depositing a second layer of dielectric material at controlled pressure.

(16) The process according to claim 15, wherein said second layer is of silicon dioxide.

(17) The process according to claim 16, in which said second layer has a thickness not greater than 1 μm.

(18) A method of amplification, comprising amplifying a target nucleic acid in an integrated microfluidic reactor, wherein a fluid comprising the target nucleic acid is moved through the microfluidic reactor using the micropump of any of claims 1-11.

(19) A method of biological analysis, comprising analyzing a target biological molecule in an integrated microfluidic reactor, wherein a fluid comprising the target biological molecule is moved through the microfluidic reactor using the micropump of any of claims 1-11.